

What is claimed is:

1. An electrical extension cord comprising:
an electrical cable having first and second ends including separate, insulated phase and
5 neutral conductors surrounded by a conductive sensing shield wherein said cable is electrically
connected at first ends of the phase and neutral conductors and conductive sensing shield to a
plug having phase and neutral blades,
a receptacle connected to the second end of the cable, and
a fault circuit interrupter wherein the fault circuit interrupter is electrically connected at
10 load end phase, neutral and shield ports to the cable at second ends of the phase, neutral and
shield conductors, and at line end phase and neutral ports to the phase and neutral plug blades
and wherein leakage current collected by the shield enables operation of the fault circuit
interrupter to electrically disconnect the receptacle from the plug.
- 15 2. The electrical extension cord of claim 1, wherein the extension cord contains an
integrity indicator which denotes if the extension cord is safe to use.
3. The electrical extension cord of claim 1, wherein the fault circuit interrupter in the
plug electrically isolates the receptacle of the extension cord from the plug if an unsafe condition
20 should arise.
4. The electrical extension cord of claim 2, wherein the integrity indicator is located
in the receptacle of the extension cord.
- 25 5. The electrical extension cord of claim 3, wherein the integrity indicator is a light.
6. The electrical extension cord of claim 3, further comprising a switch located in
the receptacle for testing the integrity of the extension cord.
- 30 7. The electrical extension cord of claim 6, wherein the switch in the receptacle is
used to test for shield continuity.
8. The electrical extension cord of claim 6, wherein the switch in the receptacle tests
the fault circuit interrupter by simulating a leakage condition in the extension cord.

9. The electrical extension cord of claim 1, further comprising a sensor located in the receptacle coupled to activate the fault circuit interrupter to electrically disconnect the receptacle from the plug upon exposure of the sensor to a conducting medium.

5 10. The electrical extension cord of claim 1, wherein the fault circuit interrupter electrically disconnects the receptacle from the plug should the shield become discontinuous.

11. The electrical extension cord of claim 1, wherein the fault circuit interrupter is a leakage current detection interrupter.

10 12. The electrical extension cord of claim 2, wherein the integrity indicator is located in the plug of the extension cord.

13. The electrical extension cord of claim 12, further comprising a return conductor
15 located within the extension cord connecting the end of the shield conductor located in the receptacle to the integrity indicator in the plug.

14. The electrical extension cord of claim 12, wherein the integrity indicator is a light.

20 15. The electrical extension cord of claim 14, further comprising a switch located in the receptacle for testing the integrity of the extension cord.

16. The electrical extension cord of claim 15, wherein the switch in the plug is used to test for shield continuity.

25 17. The electrical extension cord of claim 15, wherein the switch in the plug tests the fault circuit interrupter by simulating a leakage condition in the extension cord.

18. The electrical extension cord of claim 1 wherein the electrical cable is a flat cord.

30 19. The electrical extension cord of claim 1 wherein the electrical cable is a flat cord which includes a ground conductor.

20. An electrical extension cord comprising:

an electrical cable including separate, insulated phase and neutral conductors surrounded by a conductive shield wherein said cable is electrically connected at first ends of the phase and neutral conductors and conductive shield to a receptacle,

an electrical plug comprising a plug housing, phase and neutral plug blades,

5 a fault circuit interrupter wherein the fault circuit interrupter is electrically connected at load end phase, neutral and shield ports to the cable at second ends of the phase, neutral and shield conductors, and at line end phase and neutral ports to the phase and neutral plug blades, and

10 impedance sensing means coupled to operate the fault circuit interrupter to electrically disconnect the receptacle from the plug upon the detection of an impedance between the shield and neutral conductors of less than a predetermined value.

21. The electrical extension cord of claim 1 wherein the electrical cable is a flat cord.

15 22. The electrical extension cord of claim 1 wherein the electrical cable is a flat cord which includes a ground conductor.

23. An electrical extension cord comprising:

20 an electrical cable including separate, insulated phase and neutral conductors surrounded by a conductive shield wherein said cable is electrically connected at first ends of the phase and neutral conductors and conductive shield to a receptacle,

an electrical plug comprising a plug housing, phase and neutral plug blades,

25 a fault circuit interrupter wherein the fault circuit interrupter is electrically connected at load end phase, neutral and shield ports to the cable at second ends of the phase, neutral and shield conductors, and at line end phase and neutral ports to the phase and neutral plug blades, and

impedance sensing means coupled to operate the fault circuit interrupter to electrically disconnect the receptacle from the plug upon the detection of an impedance between the shield and a ground of less than a predetermined value.

30

24. The electrical extension cord of claim 23 wherein the electrical cable is a flat cord.

25. The electrical extension cord of claim 23 wherein the electrical cable is a flat cord which includes a ground conductor.

5 26. An electrical extension cord comprising:
an electrical cable including separate, insulated phase and neutral conductors surrounded
by a conductive shield wherein said cable is electrically connected at first ends of the phase and
neutral conductors and conductive shield to a receptacle,
an electrical plug comprising a plug housing, phase and neutral plug blades,
10 a fault circuit interrupter wherein the fault circuit interrupter is electrically connected at
load end phase, neutral and shield ports to the cable at second ends of the phase, neutral and
shield conductors, and at line end phase and neutral ports to the phase and neutral plug blades,
and
tripping means coupled to operate the fault circuit interrupter to electrically disconnect
15 the receptacle from the plug upon the opening of the shield conductor.

27. The electrical extension cord of claim 26 wherein the electrical cable is a flat cord.

20 28. The electrical extension cord of claim 26 wherein the electrical cable is a flat cord which includes a ground conductor.

29. An electrical extension cord comprising:
an electrical cable including separate, insulated phase and neutral conductors surrounded
25 by a conductive shield wherein said cable is electrically connected at first ends of the phase and
neutral conductors and conductive shield to a receptacle,
an electrical plug comprising a plug housing, phase and neutral plug blades,
a fault circuit interrupter wherein the fault circuit interrupter is electrically connected at
load end phase, neutral and shield ports to the cable at second ends of the phase, neutral and
30 shield conductors, and at line end phase and neutral ports to the phase and neutral plug blades,
and
tripping means coupled to operate the fault circuit interrupter to electrically disconnect
the receptacle from the plug upon the opening of the neutral conductor.

30. The electrical extension cord of claim 29 wherein the electrical cable is a flat cord.

5 31. The electrical extension cord of claim 29 wherein the electrical cable is a flat cord which includes a ground conductor.

32. An electrical extension cord comprising:
an electrical cable including separate, insulated phase and neutral conductors surrounded
10 by a conductive sensing shield wherein said cable is electrically connected at first ends of the phase and neutral conductors and conductive sensing shield to a receptacle,
an electrical plug comprising a plug housing, phase and neutral plug blades,
a fault circuit interrupter wherein the fault circuit interrupter is electrically connected at
load end phase, neutral and shield ports to the cable at second ends of the phase, neutral and
15 shield conductors, and at line end phase and neutral ports to the phase and neutral plug blades wherein leakage current collected by the shield enables operation of the fault circuit interrupter to electrically disconnect the receptacle from the plug, and
an integrity indicator located in the plug or receptacle to verify the conductivity of the phase or shield conductors and that protection is available during either the negative or positive
20 half cycle of an AC signal of the phase conductor.

33. An electrical extension cord comprising:
an electrical cable having first and second ends including separate, insulated phase and neutral conductors surrounded by a conductive sensing shield wherein said cable is electrically
25 connected at first ends of the phase and neutral conductors and conductive sensing shield to a plug having phase and neutral blades,
a receptacle connected to the second end of the cable, and
a fault circuit interrupter wherein the fault circuit interrupter is electrically connected at
load end phase, neutral and shield ports to the cable at second ends of the phase, neutral and
30 shield conductors, and at line end phase and neutral ports to the phase and neutral plug blades and wherein leakage current collected by the shield enables operation of the fault circuit interrupter to electrically disconnect the receptacle from the plug.